

CLAIMS

1. A contaminated liquid filtration system vehicle which travels to a contaminated liquid collection unit in a factory or the like and treats the contaminated liquid within the collection unit, characterized in comprising:

vehicle driving unit comprising a driving engine and a driving mechanism;

suction unit for aspirating the contaminated liquid within said contaminated liquid collection unit as liquid to be treated;

a filtration system constituted by a charged filter device and a charged coalescer type oil water separator for filtration treating the aspirated liquid to be treated;

electric power supply unit for supplying a driving power source to said filtration system;

delivery unit for returning treated liquid which has been treated in said filtration system to the same or a different collection unit in the factory or the like; and

control unit for controlling operations of said filtration system,

wherein said charged filter device is caused to advance the filtration of impurity particles by applying a voltage between electrodes within said charged filter device using the driving power source supplied from said electric power supply unit, and

said charged coalescer type oil water separator is caused to advance oil water separation by applying a voltage between electrodes within the oil water separator using the driving power source supplied from said electric power supply unit.

2. A contaminated liquid filtration system vehicle which travels to a contaminated liquid collection unit in a factory or the like and treats the contaminated liquid within the collection unit, characterized in comprising:

vehicle driving unit comprising a driving engine

and a driving mechanism;

suction unit for aspirating the contaminated liquid within said contaminated liquid collection unit as liquid to be treated;

a filtration system constituted by a charged filter device, a charged coalescer type oil water separator, and a microfiltration device comprising hollow fiber membranes of an internal pressure circulation system, for filtration treating the aspirated liquid to be treated;

electric power supply unit for supplying a driving power source to said filtration system;

delivery unit for returning treated liquid which has been treated in said filtration system to the same or a different collection unit in the factory or the like; and

control unit for controlling operations of said filtration system,

wherein said charged filter device is caused to advance the filtration of impurity particles by applying a

voltage between electrodes within said charged filter device using the driving power source supplied from said electric power supply unit,

said charged coalescer type oil water separator is caused to advance oil water separation by applying a voltage between electrodes within the oil water separator using the driving power source supplied from said electric power supply unit, and

said microfiltration device comprises a primary side circulation path for circulating the liquid to be treated and a discharge path which is bifurcated therefrom to discharge concentrated liquid, an open/close valve being provided on said discharge path and said control unit controlling the discharge of said concentrated liquid by opening said open/close valve at predetermined time intervals set in accordance with the type of the liquid to be treated.

3. The contaminated liquid filtration system vehicle

according to claim 2, characterized in that the discharge path to discharge the concentrated liquid bifurcates from the primary side circulation path of said microfiltration device, the open/close valve is provided on the discharge path, a concentration detection unit for detecting the density of the concentrated liquid is provided on said primary side circulation path, and said control unit control the discharge of said concentrated liquid by opening the open/close valve when the concentration of the concentrated liquid in the primary side circulation path, which is detected by said concentration detection unit, exceeds a predetermined value.

4. The contaminated liquid filtration system vehicle according to claim 3, characterized in that said concentration detection unit is constituted by a pressure sensor for detecting pressure change inside the primary side circulation path, and concentration variation is detected indirectly thereby according to the viscous resistance of the liquid to be treated

flowing through said circulation path.

5. The contaminated liquid filtration system vehicle according to any one of claims 1 through 4, characterized in comprising a sensor for detecting irregularities in said open/close valve and warning unit for outputting a warning signal on the basis of the irregularities in the open/close valve detected by said sensor.

6. The contaminated liquid filtration system vehicle according to claim 2, characterized in that the discharge path to discharge the concentrated liquid bifurcates from the primary side circulation path of said microfiltration device, the open/close valve is provided on the discharge path, and said control unit output a warning signal such as a light or sound for advancing opening of said open/close valve following the elapse of a predetermined time period set in accordance with the type of the liquid to be treated.

7. The contaminated liquid filtration system vehicle according to any one of claims 1 through 6, characterized in comprising a sensor for detecting irregularities in the pump of said microfiltration device and warning unit for making a warning signal on the basis of irregularities in the pump detected by said sensor.

8. A contaminated liquid filtration system vehicle which travels to a contaminated liquid collection unit in a factory or the like and treats the contaminated liquid within the collection unit, characterized in comprising:

a vehicle driving unit comprising a driving engine and a driving mechanism;

a suction unit for aspirating the contaminated liquid within said contaminated liquid collection unit as liquid to be treated;

a filtration system constituted by a charged filter

device, a charged coalescer type oil water separator, and a microfiltration device comprising hollow fiber membranes of an internal pressure circulation system, for filtration treating the aspirated liquid to be treated;

an electric power supply unit for supplying a driving power source to said filtration system;

a delivery unit for returning treated liquid which has been treated in said filtration system to the same or a different collection unit in the factory or the like; and

control unit for controlling operations of said filtration system,

wherein said charged filter device is caused to advance the filtration of impurity particles by applying a voltage between electrodes within said charged filter device using the driving power source supplied from said electric power supply unit,

said charged coalescer type oil water separator is caused to advance oil water separation by applying a voltage

between electrodes within the oil water separator using the driving power source supplied from said electric power supply unit,

said microfiltration device comprises a primary side circulation path for circulating the liquid to be treated and a discharge path which is bifurcated therefrom to discharge concentrated liquid, an open/close valve being provided on said discharge path and said control unit controlling the discharge of said concentrated liquid by opening said open/close valve at predetermined time intervals set in accordance with the type of the liquid to be treated, and

air supply pipes connected to said charged filter device, oil water separator, and microfiltration device to drain each of said devices are disposed in a single location, open/close valves being installed side by side on each of said pipes.

9. The contaminated liquid filtration system vehicle according to any one of claims 1 through 8, characterized in

that a suction pipe for aspirating the contaminated liquid in the contaminated liquid collection unit is provided as said suction unit, an electromagnetic valve is provided at a point on the channel of said suction pipe for opening and closing said channel, and said control unit prevent improper use by closing said electromagnetic valve during said draining.

10. The contaminated liquid filtration system vehicle according to any one of claims 1 through 9, characterized in comprising an image capturing device to capture images of constitutional elements such as the piping of the filtration system, and a memory device for storing and managing image information captured by said image capturing device.

11. The contaminated liquid filtration system vehicle according to any one of claims 1 through 10, characterized in comprising a power generating device serving as said electric power supply unit which is driven by the driving engine

constituting said vehicle driving unit.

12. The contaminated liquid filtration system vehicle according to any one of claims 1 through 11, characterized in that said filtration system is installed on a load-carrying platform which is removably connected to the vehicle main body, and said filtration system is constituted so as to be detachable with a cargo compartment.